Makabagong Pagsasaka sa Himpapawid

Manual of Operations

Schools-on-the-Air on Smart Rice Agriculture

July 2020

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Key Abbreviations and Acronyms

AWD	Alternate Wetting and Drying
AFIS	Agriculture and Fisheries Information Service
CAT	Community Audio Tower
CCAFS SEA	CGIAR Research Program Climate Change, Agriculture and Food Security in Southeast Asia
CO^2	Carbon dioxide
CSA	Climate-smart agriculture
CSR	Climate-Smart Rice Cultivars
DA	Department of Agriculture
DA–ATI	DA - Agricultural Training Institute
DA-BAR	DA - Bureau of Agricultural Research
DA-BPI	DA - Bureau of Plan Industry
DA–RFO	DA - Regional Field Office
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
FB	Facebook
GO	Government Organization
ICT	Information and Communication Technology
IPCC	Inter-Governmental Panel on Climate Change
IRRI	International Rice Research Institute
LGU	Local Government Unit
MOA	Memorandum of Agreement
MOET	Minus-One Element Technique
NGO	Non-Government Organization
NIA	National Irrigation Administration
NRP	National Rice Program
NSQCS	National Seed Quality Control Services

PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PIA	Philippine Information Agency
PBS	Philippine Broadcasting Service
PFRB	Philippine Federation of Rural Broadcasters
DA–PhilMech	DA - Philippine Center for Post-harvest Development and Mechanization
DA–PhilRice	DA - Philippine Rice Research Institute
PRIME	Pest Risk Identification and Management
PRISM	Philippine Rice Information System
RAFIS	Regional Agriculture and Fisheries Information System
RCEF	Rice Competitiveness Enhancement Program
RCM	Rice Crop Manager
SEARCA	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SMS	Subject Matter Specialist
SOA–MRA	School-on-the- Air on Modern Rice Agriculture
SUC	State University and College
TWG	Technical Working Group
UNESCO	United Nations Education, Scientific and Cultural Organization

Foreword

Upon my assumption of office as Secretary of Agriculture, we enunciated eight paradigms constituting a New Thinking on Philippine agriculture, foremost of which is agricultural modernization. Coming from a science background, I believe that modernization is propelled by technological innovations used by a critical mass of next users and end users all over the country. Along with this, there is an urgency to scale cutting edge technologies along with those developed by the Philippines-IRRI Collaborative Rice Program (PICRP). This was recently given a boost with my creation of a Joint DA-IRRI Task Force on Scaling Rice Technologies, an offshoot of a review of the PICRP which was completed in April 2020. The Joint Task Force recommended the scaling of PICRP's outputs (e.g., NextGen varieties, hybrids, RCM, PRISM and PRIME) among others. In line with this, I approved the implementation of a radio-based distance learning program on modern rice agriculture with a targeted reach of 300,000 farmers in two years especially in provinces with average yields of less than 4t/ha.

At the core of this initiative will be unified Schools-on-the-Air (SOA) programs to be spearheaded by DA-RFOs in tandem with DA-ATI, with DA-PhilRice, DA-PhilMech, DA-BPI, PFRB, SUCs and local radio networks as major partners. Dubbed as *Makabagong Pagsasaka sa Himpapawid,* the SOA programs will help scale cutting edge technologies by bringing these to the doorsteps of farm households nationwide, overcoming geographical, literacy, other socio-economic barriers, and precautionary measures against COVID-19. Moreover, it will establish strong linkages and partnerships among rural communities, government (national and local), private sector, and civil society organizations. Building on existing SOAs but with a standard curriculum and a much bigger enrolment and reach, *Makabagong Pagsasaka sa Himpapawid* will be simultaneously conducted in all rice producing provinces through live radio broadcast by DA with partner stations, complemented by LGU extension services, multimedia knowledge products and ICT.

The expected outcome of *Makabagong Pagsasaka sa Himpapawid* is the widespread awareness and understanding of modern, climate-smart rice agriculture technologies with corresponding support services, increasing the productivity (*Ani*) and income (*Kita*) of rice farmers. Its expected impact is sustained food and nutrition security in the country and enhanced livelihoods of farmers under climate change. It will also bring about stronger engagement among public-private institutions, providing vigorous support to the National Rice Program.

This manual will surely help rural broadcasters, partner agencies and other development organizations in organizing and implementing SOA programs. It is an updated adaptation of an earlier SOA handbook produced by the DA–ATI with the PFRB for the *Agrikulturang Makamasa* program during my first stint in leading the DA in 1998. Developed amidst the COVID-19 pandemic, I would like to thank the IRRI-hosted CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS-SEA), Joint DA–IRRI Task Force on Scaling Rice Technologies, and PFRB for spearheading this initiative.

WILLIAM D. DAR
Secretary
Department of Agriculture, Philippines

Preface

Despite the prevalence of high-speed Internet and television in today's world, radio is still a very important and relevant medium especially in developing nations. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), more than 95% of the world's population uses radio. In the Philippines, radio reaches 85% to 90 % of the population, while TV reaches less than 67%. As a result, radio is considered the most reliable medium for sharing news in the countryside.

Radio is indeed a very powerful tool for national development. It is the most pervasive medium which reaches a large number of people at the least cost. It transcends literacy and geographical barriers and being in audio mode, elicits strong emotional impact among listeners. Along with this, the CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS SEA) hosted by IRRI is pleased to partner with the DA and PFRB in developing this operations manual on “Makabagong Pagsasaka sa Himpapawid,” a radio-based distance learning program for modern and climate-smart rice agriculture in the Philippines.

This manual serves as a guide for all partners involved in the SOA-SRA program. It has six chapters: (1) Context, (2) Introduction, (3) Implementation scheme, (4) Organizing and conducting the SOA, (5) Logistical requirements, and (6) Reporting procedures. Also included are the various activities from the pre-broadcast to the post-broadcast phase, roles and responsibilities of partners involved in the program, references on modern, climate-smart rice agriculture and a sample SOA curriculum.

Knowledge sharing through the mass media is critical in helping catalyze behavior change towards the utilization of modern and climate-smart agriculture technologies among farmers. CCAFS aspires to help bring about behavior change among millions of farmers in Southeast Asia, and radio is one of the best and most cost-effective medium to achieve this. Being the most pervasive medium of mass communication, radio substantially contributes to behavior change by raising the level of awareness and understanding of farmers on climate-smart agriculture.

The active involvement of research and extension organizations, state universities and colleges and other local partner institutions adds another novel dimension to the "Makabagong Pagsasaka sa Himpapawid." CGIAR is intensively looking for outcomes, hence we are quite delighted with the targeted enrollment of 300,000 farmers by the program.

We hope that through the SOA-SRA program, farmers in the Philippines will learn and practice modern, climate-smart rice technologies, thereby contributing to the attainment of food security and improved livelihoods in Southeast Asia.

SRIDHAR GUMMADI
Scientist
CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia

Chapter 1

The Context of Smart Rice Agriculture: Climate Change and Food Security[1]

What is climate change

Climate change is a significant and lasting variation of weather patterns over long periods, ranging from decades to millions of years. It may be a change in average weather conditions, or a change in the distribution of weather around average conditions (i.e., more or fewer extreme weather events). In other words, climate change includes major variations in temperature, rainfall and/or wind patterns, among other effects, that occur over several decades or even longer.

What is global warming

Global warming refers to the recent and ongoing increase in global average temperature near Earth's surface. It is caused mostly by increasing concentrations of greenhouse gases (GHGs) in the atmosphere. Global warming is causing climate patterns to change. However, global warming itself represents only one aspect of climate change.

Each of the last three decades has been much warmer than the one before it, with each one setting a new and significant record for the highest global temperature. The manifestation of global warming is through melting glaciers, rising sea levels, arctic sea ice retreat, reduced snow cover, and other changes. Long records of past climates show that the warming of the past 50 years is clearly unusual in a long-term context.

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[1] Compiled and edited by Dr. Rex Navarro, IRRI-CCAFS SEA / PhilRice Consultant and Member of the Joint DA-IRRI Task Force on Scaling Rice Technologies and the Technical Working Group on Provice-led Extension.

Global warming is already affecting weather

Global warming is increasing the frequency and intensity of some types of extreme weather. For example, warming is causing more rain to fall in heavy downpours. There are also longer dry periods between rainfalls. This, coupled with more evaporation due to higher temperatures, intensifies drought. Wet places have generally become wetter, while dry places have become drier. Heat waves have become more frequent and intense, while very cold days have decreased.

Sea level is rising

Global warming causes sea level to rise in two ways. First, over the last 50 years, the oceans have absorbed more than 90 percent of the heat that has been added to the climate system due to the build-up of heat-trapping gases. As the ocean warms up, it expands, taking up more space and causing its level to rise. Warming has been observed in each of the world's major ocean basins and has been linked to human influence. Second, warming leads to the melting of glaciers and ice sheets (ice on land), which raises sea levels by adding more water to the oceans. Glaciers have been retreating worldwide, and the rate of retreat has increased in the past decade. The world's two major ice sheets on Greenland and Antarctica are now losing mass.

Sea-level rise also exposes coastlines to greater risks of flooding and erosion and is expected to affect millions of additional people each year by late this century. Small islands such as the Maldives, Asian Mega-Deltas such as in Bangladesh, and low-lying coastlines in the Philippines and Southeast Asia are among the vulnerable locations. Some small island nations could disappear entirely. Portions of some major coastal cities may have to be abandoned.

Greenhouse gas emissions

GHGs act like a blanket around Earth, trapping energy in the atmosphere and causing it to warm. This phenomenon is called the greenhouse effect and is natural and necessary to support life on

Earth. However, the buildup of GHGs can change Earth's climate and result in dangerous effects to human health and welfare and ecosystems.

Globally, about 80 percent of human-induced carbon dioxide emissions come from the burning of fossil fuels, while about 20 percent results from deforestation. Agriculture, livestock and methane concentrations have increased mainly as a result of crop production, raising animals (which produce methane in their digestive tracts), mining, transportation, use of certain fossil fuels, and decomposing garbage in landfills.

Impact on crop production

Agriculture and fisheries are highly dependent on specific climate conditions. Understanding the overall effect of climate change on our food supply can be complex. Increases in temperature and carbon dioxide can be beneficial for some crops in some places. But to realize these benefits, nutrient levels, soil moisture, water availability, and other conditions must also be met. Changes in the frequency and severity of droughts and floods could pose challenges for farmers. Meanwhile, warmer water temperatures are likely to cause the habitat ranges of many fish and shellfish species to shift, which could disrupt ecosystems.

On the whole, climate change could make it more difficult to grow crops, raise animals, and catch fish in the same ways and same places as we have done in the past. The effects of climate change also need to be considered along with other evolving factors that affect agricultural production, such as changes in farming practices and technology. For example, food production is projected to decline in tropical regions as rising temperatures decrease crop yields. Drought-prone areas are particularly vulnerable to food shortages due to a reduction in the land area suitable for agriculture.

Climate-smart agriculture

FAO defines climate-smart agriculture (CSA) as “agriculture that sustainably increases productivity, enhances resilience (adaptation),

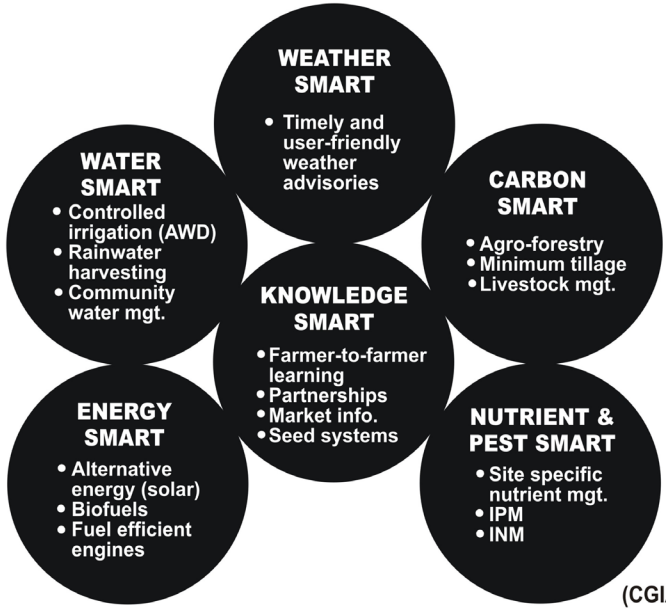
reduces or removes GHGs (mitigation) where possible, and enhances achievement of national food security and development goals". Productivity, adaptation, and mitigation are identified as the three interlinked pillars necessary for achieving this goal.

- **Productivity:** CSA aims to sustainably increase agricultural productivity and incomes from crops, livestock, and fish, without having a negative impact on the environment. This, in turn, will raise food and nutritional security. A key concept related to raising productivity is sustainable intensification.

- **Adaptation:** CSA aims to reduce the exposure of farmers to short-term risks, while also strengthening their resilience by building their capacity to adapt and prosper in the face of shocks and longer-term stresses. Particular attention is given to protecting ecosystem services which ecosystems provide to farmers and others. These services are essential for maintaining productivity and our ability to adapt to climate changes.

- **Mitigation:** Wherever and whenever possible, CSA should help to reduce and/or remove greenhouse gas (GHG) emissions. This implies that we reduce emissions for each calorie or kilo of food, fiber and fuel that we produce, avoid deforestation from agriculture, and manage soils and trees in ways that maximize their potential to act as carbon sinks and absorb CO2 from the atmosphere.

CSA practices



(CGIAR-CCAFS)

Chapter 2

Background and Rationale

Overview

In most capacity building programs for farmers, the usual approach is through classroom lectures and discussions, season-long training-workshops, hands-on exercises, and technology demonstrations. These methods allow person-to-person contact among trainers and learners, an important requisite of the teaching-learning process. However, these approaches have very limited reach and are quite expensive.

Print media, on the other hand, also serves as an effective learning platform since it is permanent and can be repeatedly used and passed on among users. However, it is dependent on the ability of learners to read and understand written modules. Moreover, the limited circulation of print media cannot reach a critical mass of intended learners especially in far-flung areas.

Radio, meanwhile, is the mass medium reaching the widest audiences in the world. In the Philippines, it reaches 85 to 90 percent of the population through over 25 million sets nationwide. Scanning the style of radio programs explains why this medium remains the most popular channel among Filipinos, especially in the grassroots. Radio content and formats are quite diversified, hence, there is always a program catering to almost every sector – farmers, fisherfolk, rural women and youth, religious groups, sports enthusiasts, and others.

Radio is an effective and low-cost learning medium, reaching people regardless of their educational level. It is acknowledged as the primary source of news and the most pervasive, persuasive, and credible communication channel, specifically suited to reach remote communities and vulnerable people – the illiterate, disabled, rural women, and the youth. It has a unique advantage – the quick

capacity of sharing information and technology from research institutions to millions of end users.

Of importance in reaching a critical mass is the Schools-on-the-Air (SOA) program. SOAs are relatively inexpensive and, if properly planned, carefully implemented and adequately supported, are equally effective compared to other conventional approaches of teaching farmers. SOAs complement and supplement the limited reach of frontline extension workers especially at this time, when the COVID-19 pandemic poses challenges related to access and reach.

Like the classroom's teaching-learning process, the SOA features a series of radio programs, presenting the subject matter systematically and in a progressive manner. It has the following elements:

1. A series of lessons is specially designed and aired successively in a radio program over a certain period of time.

2. A specific subject matter area is covered.

3. Daily lessons on the air usually last from 15 to 30 minutes.

4. There are enrolled listeners.

5. Quizzes are given after every lesson or set of lessons.

6. A pretest is given before the airing of lessons to determine the level of knowledge of learners about the subject matter. A post-test is administered after all the lessons have been aired to determine the knowledge gain of learners.

7. At the end of the course, a graduation is held where certificates and awards are given out to learners who have met all course requirements.

8. Research is conducted to determine the information needs and characteristics of learners and evaluate their acceptance, outcome, and impact of the SOA.

9. The whole course is usually conducted over a fixed period. Some SOAs may last for a month covering a single subject matter; others may last for six months with various subjects.

The School-on-the-Air on Smart Rice Agriculture (SOA-SRA)

"*Makabagong Pagsasaka sa Himpapawid*"

With the assumption of office of DA Secretary William Dar, eight new paradigms are being enunciated for rural transformation, foremost of which is the modernization and competitiveness of Philippine agriculture through cutting-edge technologies. Along with this, Secretary Dar emphasized the need for the DA and the RCEF-Rice Extension Services Program to reach a critical mass of farmers. Along with this, there is an urgent need to scale cutting-edge technologies along with those developed by the Philippines-IRRI Collaborative Rice Program (PICRP). This was given a boost with the creation of a Joint DA-IRRI Task Force on Scaling Rice Technologies which agreed to prioritize the scaling of NextGen varieties, hybrids, RCM, PRISM and PRIME among others, especially in provinces with yields below 4t/ha (irrigated) as shown in Attachment 01. Together with province-led extension, this will be pursued by harnessing the power of radio through a unified distance learning program dubbed as "*Makabagong Pagsasaka sa Himpapawid*."

Aside from efficiently sharing and scaling cutting-edge technologies, radio has a cascading effect on policy makers and LGUs to mainstream modern agriculture in local agriculture policies and programs. Being handy, portable and cheap, radio is a practical and creative solution to the massive information and educational needs of poor farmers, many of whom are largely unreached by government capacity-building programs. It also becomes a practical learning platform during a pandemic such as COVID-19. In this regard, *Makabagong Pagsasaka sa Himpapawid* aims to:

1. Facilitate the massive and sustained education of smallholder farmers on smart rice agriculture through radio.

2. Link smallholder farmers with knowledge, technology and other support providers of the rice industry.

3. Heighten awareness and mobilize strong support and involvement of the rural populace in agriculture programs.

4. Engage government agencies, local government units, civil society organizations and the private sector in the National Rice Program.

5. Serve as a quick feedback mechanism and venue for dialogue among stakeholders of the rice industry.

At the core of this project are unified Schools–on–the–Air on smart rice agriculture (SOA-SRA) which will be conducted in the major rice producing provinces through DA-owned and controlled radio stations, Philippine Broadcasting Service (PBS) *Radyo ng Pilipinas,* Philippine Information Agency (PIA), community radio stations, and members of the Philippine Federation of Rural Broadcasters (PFRB).

Our approach

1. SOA-SRA is a radio-based distance learning program targeting provinces with <4t/ha yields.
2. SOA programs will be simultaneously conducted by DWDA, PBS, PIA and PFRB broadcasters.
3. Broadcasters will be provided with ready-to-be-aired scripts (in modular format), radio plugs and canned interviews.
4. Content will be provided and packaged by partner agencies spearheded by PhilRice, DA-ATI, SUCs, DOST-PAGASA and IRRI-CCAFS.
5. SOA-SRA will be sustained based on the outcome assessment of the first broadcast season.

Likewise, involved radio stations and rural broadcasters will be provided with radio plugs, canned interviews, and ready-to-be-aired scripts and CDsproduced through a pilot radio campaign of the CCAFS SEA–PFRB project titled "*Climate Change: i-Broadkas Mo.*" The SOAs will be continuing with a targeted enrolment of up to 300,000 farmers nationwide in two years.

Subject matter content will focus on the entire rice value chain featuring DA-IRRI cutting edge technologies (Attachment 02) with the PalayCheck system (Attachment 03) as the overall platform in the broader context of climate change (Attachment 04). Subject matter will be clustered into modules and delivered in lessons. The overall message treatment will be mainly 'edutainment' while the format will be a combination of a radio magazine, public affairs, and a formal SOA program. The magazine component will be reinforced by news, ready-to-air scripts, and canned interviews, as well as interaction with listeners through text. Information will be presented in attractive and entertaining formats (e.g., drama, interviews with popular personalities, or music recordings combined with voice).

Objectives of the manual

This manual will serve as a ready reference and guide to SOA–SRA project implementors. Moreover, it also serves as a sourcebook, offering concepts, strategies, and best practices in conducting SOA programs which are of interest among development communication practitioners and the academe.

The original write–up from which this updated manual was adapted was an output of a two–day conference–workshop conducted by DA –ATI and PFRB on conducting SOA in 1998, attended by veteran broadcast practitioners and experts from the Philippine academe.

Chapter 3
Implementation Scheme

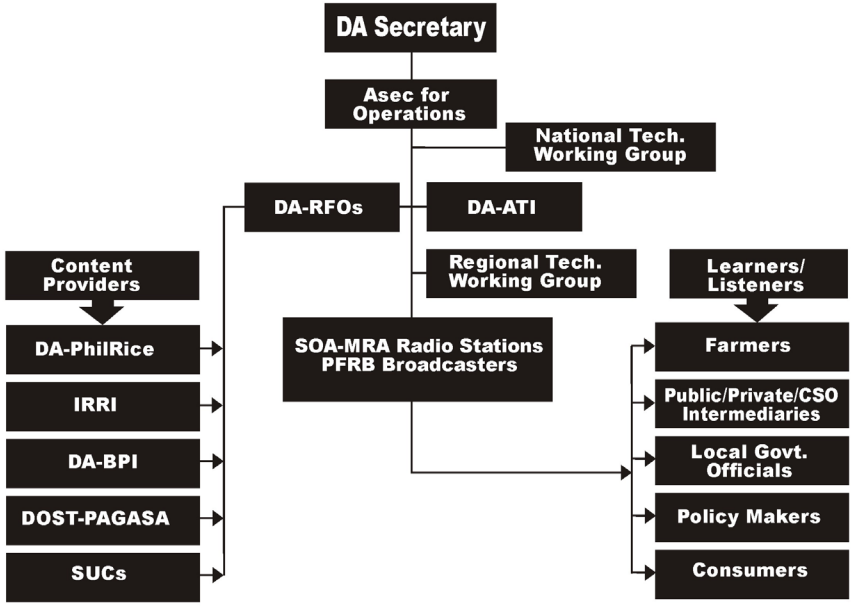
Institutional arrangement

A coalition of public-private partners shall be involved in implementing the SOA-SRA. At the national level, a Technical Working Group (NTWG) shall lead project implementation under the direct supervision of the Assistant Secretary for Operations and co-chaired by the ATI Assistant Director and PhilRice Deputy Director for Development who shall also serve as Program Managers. Members shall be composed of the members of the Joint DA-IRRI Task Force, Head of DA Communication, Head of DA-AFIS, PFRB President, Head of PhilRice communication, Head of ATI-ISD, PhilMech representative, and PIA and PBS representatives. Other key DA staff (e.g., BAR and FOS) may be called to support the TWG, with ATI serving as the National Secretariat.

The national TWG shall be mirrored at the regional level to be chaired by the RFO Regional Executive Director and co-chaired by the Regional Agriculture and Fisheries Information Officer and the ATI Regional Director. Members shall be representatives from PhilRice Branch Stations, PBS/PIA/PFRB/DOST-PAGASA regional offices, SUCs, the private sector (i.e., RAFC Chair), and farmers. The NTWG shall be activated immediately to map out an operational plan for the SOA-SRA. This plan shall guide the RTWGs which shall also be activated after that of the NTWG. Regular progress reports shall be submitted to the DA Secretary which shall also reflect those from the RTWGs.

Core listeners or learners shall be enrolled rice farmers with public/private/CSO intermediaries, local policymakers, LGU officials and consumers as secondary listeners.

SRA-MRA Operational Scheme



Mobilizing partners

Letters of invitation shall come from the lead agency (i.e., DA-RFOs) and follow-up meetings and workshops to get the involvement and buy-in of partner organizations. They can help the SOA–SRA program in various ways by establishing linkages with stakeholders especially in remote areas, and advise them to participate/enroll in the SOA-SRA. Likewise, they shall deploy subject matter specialists who are experts on the topics to be covered. A systematic procedure for stakeholder engagement and partnerships should be established for the project. A series of meetings should be conducted by the regional TWGs to firm up linkages and involvement of partner agencies. Aside from those indicated, lead farmers, local government officials and agricultural extension workers should be involved in the project by promoting enrollment in the SOA-SRA, serving as resource person/subject matter specialists and assisting in feedback gathering.

Roles and responsibilities of partners

The SOA-SRA is propelled by public-private partnerships, assmart agriculture under climate change cuts across many sectors. Aside from commitments at the national level, the DA-RFOs are encouraged to sign a localized Memorandum of Agreement (MOA) with partner organizations with responsibilities as listed below. The template for the localized MOA is in Attachment 05.

A. Department of Agriculture (NRP, RFOs, ATI)

1. Pre-broadcast Phase

a) Allocate funds for the conduct of the SOA-SRA.

b) Organize, promote and implement the project with partners.

c) Conduct needs analysis in tandem with SUCs and LGUs.

d) Provide Subject Matter Specialists (SMS) and facilitate content development.

e) Coordinate with Local Government Units (LGUs), local broadcasters, and carrier stations for the airing of the SOA-SRA program.

f) Coordinate with LGU's and farmers' organizations for their members to be officially enrolled in the SOA-SRA especially during seed and fertilizer distribution.

g) Ensure the master listing of enrollee forms and make them available to farmer-learners.

h) Organize meetings of SOA-SRA partners to discuss operational issues and other matters of concern.

i) Help broadcasters campaign for enrollment and design effective strategies to maximize the SOA's reach.

j) Organize Regional Technical Working Groups (RTWGs) to spearhead implementation, discuss issues, and recommend solutions to ensure successful implementation of the SOA.

k) Prepare a list of potential carrier radio stations in the area and sign a MOA with them, selecting radio stations where the SOA-SRA can be aired freely.

2. Broadcast Phase

a) Provide airtime slots and program anchors through the carrier stations.

b) Produce and provide complementary multimedia knowledge products for participants.

c) Collate, process, and respond to feedback and queries from participants.

d) Help check the quizzes and exams.

e) Lead and monitor the airing of the SOA-SRA programs in the carrier stations and determine:

- timeliness of materials;
- relevance of content;
- appropriate response to the listeners' queries and complaints; and
- problems of airing and their corresponding solutions.

f) Decide and plan graduation activities in coordination with broadcasters and partner agencies.

g) Help broadcasters secure logistical support from local government officials, private companies, (e.g., on the needs of the SOA–SRA graduation, venue, prizes, food, etc.).

h) Organize mass graduation of learners in tandem with partners.

3. Post-broadcast Phase

a) Evaluate the SOA-SRA with partner institutions (e.g., SUCs).

b) Lead the conduct of formal research and coordinate with SUCs offering development communication courses which can help undertake this.

c) Plan and pursue follow-up activities.

d) Package the SOA-SRA modules into print and audio form for distribution to LGUs and lead farmers for ready references.

B. PhilRice, PhilMech, BPI-NSQCS and IRRI-CCAFS SEA

1. Lead in content and courseware development.

2. Provide Subject Matter Specialists (SMS) together with DA–RFOs, SUCs, and the private sector.

3. Provide multimedia knowledge products to participants.

4. Share pilot radio campaign materials and help campaign for listenership.

5. Participate in project development and management through the Technical Working Groups (TWG).

6. Link the project with international and regional (SEA) partners.

C. Media organizations (PFRB, PBS-Radyo Pilipinas, PIA)

1. Pre-broadcast Phase

a) Assist in the production of broadcast materials.

b) Coordinate with DA–RFOs, PFRB, ATI, PhilRice, and other partner institutions for the availability of the SOA-SRA modules.

c) Discuss the mechanics of the SOA–MRA implementation, enrolment campaign, research, forms, correction of answer sheets, prizes, graduation, inviting guests, and sourcing out logistical support, etc.

d) Coordinate with rural-based organizations for massive enrollment, such as:

- Irrigators' Associations
- Farmers' Cooperatives
- Farmers' Associations

e) Campaign for the SOA-SRA through existing radio programs:

- Prepare regular promotional plugs/announcements.
- Involve other broadcasters in the carrier stations.
- Devise measures to get the biggest number of enrollees.
- Provide instructions on enrollment.
- Start enrollment campaign at least one month before the actual airing of SOA–SRA.

f) Participate in the pretest in coordination with DA–RFOs to determine the level of knowledge of SOA–SRA learners.

g) Coordinate with local experts for supplementary discussions and interviews.

h) Plan the airing of the SOA-SRA program.

i) Participate in the Regional Technical Working Group (RTWG).

j) Help promote the SOA-SRA program.

2. Broadcast Phase

a) Provide program anchors and free airtime for the SOA–SRA program.

b) Air the SOA–SRA modules according to sequence. Start with programs corresponding to the farmers' activities and timely concerns.

c) Provide supplementary discussion in the SOA-MRA program by:

- Inviting experts/farmers.
- Conducting field interviews.
- Giving timely local news and announcements.

d) Encourage learners to write/send their questions and get them answered by experts.

e) Ask learners to answer the quizzes at the end of every lesson and let the field workers gather their answers.

f) Secure the answers' guide from DA–RFOs, PhilRice or PFRB and correct the learners' answers or coordinate with DA–RFOs for the correction of answer sheets.

3. Post-broadcast Phase

a) Coordinate with DA–RFOs to:

- determine the graduates.
- decide and plan the graduation — where, when, how, prizes, awards, logistics, etc.

b. Conduct a post-test to measure knowledge gain among SOA-SRA learners.

c. Organize and hold graduation, in coordination with farmers' organizations, DA-RFOs, and other partner agencies.

d Plan follow-up activities.

e) Prepare a documentation report and send it to DA-RFOs.

D. Other partner agencies (SUCs, DOST–PAG-ASA):

1. Pre-broadcast Phase

a) Provide Subject Matter Specialists (SMS) and help develop and deliver module content.

b) Help ensure the massive enrollment of farmers in the SOA–SRA.

c) Announce the SOA-SRA enrollment through meetings, circulars and radio plugs.

d) Ensure that the announcements are done on time.

e) Send the accomplished enrollment forms to the DA-RFOs before the start of the broadcast period.

2. Broadcast Phase

a) Provide multimedia knowledge products to participants.

b) Localize and adapt broadcast materials.

c) Share pilot radio campaign materials.

d) Participate in project development and management through the RTWGs.

e) Co-facilitate the project with DA–RFOs.

f) Help collate answers of the learners.

g) Help correct the answer sheets.

h) Identify and regularly provide competent resource persons and interactor for the live portion of the SOA-SRA program.

i) Help monitor the SOA-SRA program and gather feedback from learners and listeners; send feedback to the broadcasters and DA-RFOs.

3. Post-broadcast Phase

a) Help determine the graduates.

b) Help decide and plan the graduation, secure logistical needs, etc.

c) Help evaluate the SOA–SRA.

d) Help plan follow-up activities.

E. Local Government Units (LGUs)

1. Pre-broadcast Phase

a) Mobilize farmers to enroll and promote the SOA–SRA in their respective areas

b) Assist the conduct of needs assessment with DA–RFOs and SUCs.

2. Broadcast Phase

a) Provide climate-smart rice extension services in participating communities;

b) Regularly monitor participation of learners.

c) Conduct pre-test and post-test for learners.

d) Solicit feedback and comments from learners.

e) Organize mass graduation of learners with DA–RFOs and other partners.

3. Post-broadcast Phase

a) Help evaluate the SOA-SRA.

b) Help plan follow–up activities.

To ensure smooth implementation, the DA–RFOs, PFRB, partner agencies and LGUs shall continue to conduct regular coordination through meetings, online conversations, and provision of techniques to have the episodes be heard and the scripts read by the enrollees for better learning.


TROPICAL
acer

Chapter 4

Organizing and Conducting the SOA–SRA

A. Preparatory activities

1. Planning the SOA–SRA

The conceptualization of SOA projects can be initiated by the development agency (e.g., DA), lead radio station or a farmers' group. The information officer, development broadcaster or leader of a farmers' organization are the main catalysts for SOA projects. Support may come from higher officials of development agencies, radio station management and top leadership of farmers' groups.

In the case of *Makabagong Pagsasaka sa Himpapawid,* the project is initiated by the DA in partnership with PFRB, IRRI-CCAFS SEA, PBS, PIA, and SUCs.

a) ***Setting the objectives.*** The SOA objectives should be clearly defined as indicated in Chapter 2 which is to primarily to catalyze the massive and sustained education of smallholder farmers on modern rice agriculture through radio

b) ***Preparing the project document.*** The whole project rationale, objectives, implementation mechanics, timelines, budgets, and institutional arrangements must be put in writing. Copies of the same should be distributed to all concerned partners. To formalize the project, a Memorandum of Agreement (MOA) should be signed at the national and regional level by all parties. Minutes of meetings must always be taken and copies sent to all partners. All project-related communication should also be recorded for documentation purposes.

While some may find the paper work tedious, it is worth the effort. Documents are good reminders for people of their responsibilities which are often forgotten if not written. These are quite valuable for purposes of reporting, documentation and evaluation of the SOA-SRA.

c) ***Making the SOA participatory***. A participatory approach should be practiced by anyone interested in making the SOA-SRA a success. Through participation, the intended learners such as farmer organizations should not get the impression that they are mere objects or recipients of the project. To achieve this, they should be involved as early as in the planning of the whole SOA-MRA project and in the pre- and post-broadcast phases. Other organizations involved in helping a learner group or promoting a subject matter area could share resources (e.g., manpower, funds, equipment, supplies, etc.). Local talents may also be featured (e.g., their songs, poems, etc.).

d) ***Conducting action research for the SOA***. Research is a very important tool for the SOA–MRA as it provides:

- basic information about individual learners;
- baseline socio-economic information of learner communities; and
- a sense of involvement and engagement among stakeholders.

The basic information about individual learners for the SOA are: age, sources of income, number of household members, educational attainment, preferred radio programs and stations, preferred listening time, sources of agricultural information, subjects to be included in the SOA, etc.

Research on the SOA-SRA should be conducted with higher education institutions (i.e., SUCs) or research organizations (i.e., PhilRice). Simple action research could be conducted for the SOA with its budget included in the total costings.

- Appropriate research methodologies should be used such as interview schedule, key informant interviews, or focus-group discussions (FGDs) to gather information from intended learners.

- Results of research could serve as a baseline survey or for impact evaluation.

- Organized farmers' groups could also be tapped to participate in research activities (e.g., as field interviewers).

e. ***Selecting carrier radio stations.*** Tapping radio stations which will broadcast the SOA must take into consideration their potential coverage, credibility, listeners' rating, availability of time slot and free air-time charges.

Commercial radio stations are not usually inclined to devote free air time for developmental programs. To them, the best programs are those that rate highly and have commercial viability. Nevertheless, some commercial stations also air developmental programs. It should be noted that religious stations are also semi-commercial in nature and operate as business enterprises. In the case of the SOA-SRA, only stations that offer free air time should be selected.

Commercial stations usually fear that SOA programs are dull and boring. Hence, the SOA-SRA should ensure that the program will be well-produced and that a big number of learners are expected to enroll[2]. A strong selling point of SOA programs to commercial stations is the improvement of their ratings. For regular SOA programs, non-commercial government radio stations are the most common outlets. The usually poor listeners' rating of these stations could be compensated by an intensified listeners' enrollment campaign, coordinated by grassroots organizations.

[2] Enrollment will be boosted by RCEF beneficiaries as they are encouraged to complement learning activities with SOA.

2. Preparing the syllabus

The syllabus of the whole SOA-SRA should be prepared as an overall reference for the course. This should be written in popular language and in a style that elicits sustained interest among learners. In the case of the SOA-SRA, the overall message treatment is 'edutainment' with a combination of a magazine, public affairs and a formal School–on–the Air program. The magazine component is reinforced by news, ready-to–air scripts, and canned interviews, as well as interaction with learners through text. Each lesson is made as entertaining and popular as possible andinterspersed with spots and plugs. Hence, "what" and "how-to" information are presented in attractive and entertaining formats (e.g., drama, interviews with popular personalities, and music recordings combined with voice).

a) ***Content.*** Subject matter content will initially focus on cutting-edge technologies (i.e., hybrids, NextGen, RCM, PRISM, PRIME, etc.) along the whole agriculture rice value chain (i.e., production, post production, processing, and marketing) through the PalayCheck system in the broader context of climate change. Subject matter will be clustered into modules and delivered in lessons. Each lesson will be delivered per session. Content will be localized and delivered in Filipino/ major regional language in short lessons grouped into bigger modules. A sample SOA curriculum is shown in Attachment 06.

   Aside from the foregoing, SOA-SRA content should be any or a combination of the following:

   - Values formation and education
   - Support services to modern rice agriculture (e.g., seeds, machinery, credit, insurance, marketing)
   - Community mobilization

- Institutional development
- National Rice Program updates

Technical content should be based on the information needs of learners. If possible, the delivery of topics should coincide with actual activities in the field and the community.

b) ***Format***. The usual format for SOA programs is a lecture-discussion session where a subject-matter specialist delivers the topic, assisted by a host. Various perspectives can also be introduced through interviews, invited guests, dialogues, testimonials, or panel discussions.

Besides lectures, SOAs should add variety and entertainment value to the program through music, drama, radio spots, musical jingles, documentaries, or live field reports. Rural folks usually love to laugh so hosts should employ techniques such as situation comedies. While learners are partly captive, the SOA program should be made interesting since radio is basically an entertainment medium. It should be noted that a big segment of listeners are not usually enrolled in the SOA.

c) **Course duration**. Most SOA programs last from two to six months, where programs are aired either daily, every other day, twice a week, or weekly. In some cases, advance courses are given after the initial course is taken up. In others, a series of SOA programs on related topics are conducted by the station.

d) ***Main players***. The lecturer (subject matter specialist) and the program host (broadcaster/announcer) are the main personalities in the SOA. The lecturer should have mastery of the subject matter and a good rapport with learners. Host announcers, on the other hand, should have the qualities of a good radio broadcaster, with a good and credible standing in the community. They must be able to carry lively and candid conversations with the lecturer. Finally, they should conduct discussions clearly and in the language which learners can identify with and understand.

In some cases, subject matter specialists act as the main host of the SOA program without a station announcer participating. In other cases, representatives of the listeners act as the anchor or host of the program with subject matter specialists and other related personalities invariably coming in.

3. Complementary learning resources

A variety of multimedia knowledge products will be used as complementary resource materials to the SOA program. For instance, print materials will be used for a more detailed and comprehensive presentation of the lessons discussed during the SOA program and can provide the names and addresses of people to whom queries and comments can be addressed. Print materials can also include illustrations and feedback from listeners, as well as instructional materials on climate-smart agriculture and fisheries. Being permanent, print materials explaining how-to steps are quite helpful in terms of learning retention once the SOA program is completed.. For instance, steps in a process outlined over the radio are easily forgotten, so participants can recall these back through printed materials.

Moreover, ICTs (FB, mobile phones, and websites) will be harnessed to amplify, reinforce, and expand the reach of SOAs. For instance, Facebook can be tapped to link all participants and share unique learning experiences nationwide. Text will also help in getting feedback and comments from participants, sharing information and advisories, and helping in community mobilization.

4. Program promotion and advertising

The following are some means, outside of actual radio broadcast, that can help promote the SOA-SRA project:

a) Streamers

b) Posters/Flyers

c) Radio plugs —Use voice clips from local personalities.

d) TV announcements

e) Print ads

f) Mobile loud speaker announcements

g) Meetings

h) Announcements in public places

5. Production

a) ***Scriptwriting.*** Techniques should follow the basic rules of radio that call for clarity and simplicity. The script should be conversational, rather than in lecture form. It should be written for listening and not for reading. Progression of ideas should not be too fast. Aside from the subject matter, the following should be indicated in the script:

- Radio station ID
- Program title
- Lesson number
- Title of lesson
- Resource Person/Subject Matter Specialist
- Writer/s
- Broadcaster
- Date of airing
- Time of airing

b) ***Choosing the Lecturers***. The subject matter specialists who act as lecturers in the SOA should:

- Have a voice which must be authoritative, lively, and full of enthusiasm.
- Speak the language which listeners could understand and easily identify with.
- Be a recognized authority on the subject matter and must exude confidence in dealing with assigned topics.
- Broadcast in a conversational and entertaining manner.
- Be able to utilize story-telling, quips, anecdotes, examples, analogies, and other appropriate speakers' techniques to keep the audience listening.
- Deliver lessons at a pace which learners could easily keep up with. In radio, messages are delivered in a quick and transient manner, hence, there is no way for the learners to ask immediate questions. Repetition of main ideas must therefore be employed.

c) ***Sample SOA program sequence:***

- Review of previous lesson
- Answer/s to quizzes/feedback after each lesson
- Lesson of the day (duration — 15 minutes)
  - Experts' discussions
  - Interviews
  - Announcements
  - Quiz
  - Summary
  - Teaser for next lesson

d) ***Language/dialect***. The language used should be the one being spoken in the area where the SOA is aired. Broadcast materials that have been centrally produced in English or Tagalog should be adapted into the local language or dialect.

e) ***Taping the SOA program.*** Interviews, testimonials, plugs, and other program elements should be produced with the best technical quality and should not be too strenuous for learners. Where it is possible, the taped lessons should be pretested with learners before these are mass-produced. Pretesting ensures that learners are able to understand and appreciate the lessons.

f) ***Live show***. SOA programs should be done live for dynamism. Taped programs, however, ensure quality and minimum of blunders. Where a telephone line is available, guests who cannot make it to the live program can be interviewed via the telephone patch.

6. Enrollment

In order to maximize the reach of the SOA, there should be a massive campaign for enrollment. There are various ways to achieve the most number of enrollees for the SOA-SRA.

a) Synchronize enrollment with seed and fertilizer distribution.

b) Work with existing organizations that can motivate their members to register.

c) Prepare promotional radio plugs and announcements for regular and frequent airing.

d) Produce enrollment forms for distribution to prospective enrollees.

e) Get the partner agencies to help in the campaign. Make the enrollment process a big event, and campaign vigorously towards it.

f) Arrange with field workers to campaign in the communities.

g) Prepare and distribute flyers, posters, and/or handouts.

h) Ensure that the SOA-SRA program figures in important discussions during meetings, seminars, and other engagements.

i) ap the services of schools, students, and teachers for the enrollment campaign.

j) Discuss the SOA-SRA and the other programs of the carrier radio stations.

To facilitate the enrollment process, the forms must be easy to fill out. Among the items that must be asked are the following: name, address, age, occupation, crops, formal educational attainment, family members, etc. Each enrollee must sign the form.

The deadline for the submission of the forms to the carrier stations should be fixed. Normally, the ultimate deadline is just a few days before the start of the SOA. If it is possible, a formal acceptance of enrollment should be sent to the enrollees. Their names must be announced to inform them that their forms have been received by the SOA organizer. A masterlist should be posted at the barangay or town halls or at visible locations.

7. Pretest

In all training activities, the conduct of the pretest is important in order to determine the level of knowledge of the enrollees.

B. Conducting the SOA

1. **Airing of lessons.** In delivering the lessons, the basic techniques of radio broadcasting should be followed, like using simple words and conversational language, clear delivery, uncomplicated ideas, etc. Do not use straight talk or the lecture type most of the time. Innovative broadcast formats should be employed to give the program variety, appeal, and entertainment value. For instance, use folk media, (e.g., *Balagtasan),* short dramatization, music, interviews, and panel discussions involving farmers.

Likewise, attractive sound effects should be used from time to time. Learners should be encouraged to send in feedback regularly through letters, personal visits to the station, and telephone calls. It is important to avoid gimmicks that will make the program sound cheap or flimsy, like using crude jokes.

In the SOA–SRA, a different module is aired each week with one lesson discussed per schedule day. Before the actual SOA program, the hosts should conduct a five–minute preparation and warm–up session. During this session, learners are invited to tune in to the program and call on others to join. The program then airs participants' feedback, which may include birthday greetings or information on rice industry-specific issues faced by learners.

The program proper begins with an input on the lesson for the day, followed by a discussion about the input Whenever possible, resource persons will participate and contribute their knowledge and experience in relation to the lesson. Following the discussion, the co-facilitators elicit and process relevant questions to be answered by the resource persons.. is the hosts administer a quiz towards the end of the program complete with a summary of the lesson.

2. **Giving quizzes and exams.** To assess knowledge gain by learners, the program will include quizzes on the lesson for the day.. This aims to ensure a high rate of listenership among those who are enrolled. In some SOAs, the performance in quizzes is a basis for the selection of outstanding graduates.

   On-the-air quizzes will be administeredeither daily or every other day. Some SOAs issue an examination only after every two weeks or every month. With a four-month-long SOA, only four exams are given. Fifteen days are allowed for the mailing time of the answer sheets. Some require enrollees to actually take the examination in a designated center.

   For frequent quizzes that are given after every lesson or set of lessons, some broadcasters prefer to give the question at the beginning as a teaser. This m be repeated at the end of the lesson of the day.

In formulating quizzes, it is important to give easy, simple test types, like yes or no questions, matching type, true or false, enumeration, multiple choice, and sometimes, essays. The main purpose of the quiz is to motivate learners to listen intently. It will also be a means to gauge their comprehension and knowledge increase. Some stations limit their quizzes once a month or three times during the whole course.

Learners must answer the questions themselves through a live interactive session at least once or twice throughout the course, where learners can dial in and discuss with the hosts The answer sheets also serve as a venue for getting feedback from learners. Clear and repeated instructions on how to get the answer sheets to the radio station should be broadcast frequently. Answer sheets may be sent to the station in any of the following ways:

a) Mailing them to the carrier station or the sponsoring agency every week or every month;

b) Submitting them to the DA-RFO staff or field worker; and

c) Designating drop boxes where the enrollees could bring the answer sheets.

When personnel and logistical resources permit, oral examinations and visits to learners are done to check their performance. These may be done where there are not too many learners and for localized situations.

3. **Conduct of reinforcement learning activities.** Visits to model farms or at PhilRice / DA stations and participation in field days are necessary to reinforce learnings in the SOA. LGU extension workers are also encouraged to conduct focus group discussions and community meetings among learners at designated locations. This will provide learners the opportunity to raise questions, discuss their particular situation and share ideas and practices. This event could also be used for actual demonstrations of technologies or skills that are difficult to discuss on radio.

Moreover, it is best to provide relevant reading materials to supplement the lectures. Literature, leaflets, books, flyers or the whole SOA syllabus may be distributed for free or at a discounted price.

The following are the other activities that will enhance the SOA program:

a) Acknowledgment of participants' greetings during birthdays and other important occasions.

b) Contests and awards (e.g., SOA Golden Listener of the Year, SOA *Dangal* Award).

c) Field visits and ocular evaluation.

d) Involvement of farmers/local talents during the broadcast phase.

4. **Post-test.** Like pretest, post-test conducted after the SOA course helps determine the extent of the knowledge gained by learners.

C. SOA graduation activities

Each SOA normally establishes a standard set of criteria for determining which of the learners will graduate. This is based on the percentage of correct answers given to tests and quizzes throughout the course. The standard is kept at a certain level that should not discourage enrollment in future SOAs or for the learners to take for granted their responsibility in acquiring substantial knowledge. It is best to consult technical people for details on what could be the reasonable passing mark or what other performance standards that should be required for graduation and for the selection of outstanding graduates.

Graduation gives importance to the achievement of the learners. It is a means of conferring unschooled listeners an academic and social status. Hence, graduation is the culmination of the SOA, something all learners look forward to. Hence, it is generally regarded as a grand affair.

In cases where logistical considerations would not allow a mass graduation, a closing ceremony and conferment of graduates could instead be done on the air or virtually. This decision, however, should first be cleared with the graduates and partners. If learners and partners have the interest and resources to hold a graduation ceremony, then this should be pursued at all costs with partners. In the case of SOA-SRA, a mass graduation ceremony is highly encouraged.

1. Preparation for the graduation

a) Invite guests/resource speakers.

b) Announce the graduation activities.

c) Prepare souvenir items, certificates, tokens, and other materials for sponsors, beneficiaries, and partner agencies.

d) Identify and arrange the venue.

e) Prepare the program, food, and awards.

f) Prepare SOA Agri-Fair Exhibits, where applicable.

2. The graduation program

a) Since the SOA-SRA aims for a massive enrollment, the graduation should be held locally.

b) The graduation event may be integrated with other related activities (e.g., town fiesta agri-fair, etc.).

c) Recognize sponsors, benefactors, cooperating agencies.

3. Certificates

a) Certificates of graduation (diploma) are usually artistically printed on high-quality paper and signed by the heads of lead agencies. The certificate is likely to find itself framed and hung prominently in the living rooms of learners.

b) The certificates are normally given to those who satisfy a certain standard of performance with respect to:

- Attendance
- Performance in examinations and quizzes
- Farm demonstration
- Other requirements

D. Follow-up activities

After the SOA, there is a need to conduct follow-up activities for the farmer-graduates and community in order to maintain the momentum of the program. The development agency should be able to determine how much the information has been used, enhanced, shared or stored among learners.

1. **Outcome evaluation and impact assessment** – the SOA must be evaluated in terms of the attainment of course objectives, outcomes and impacts.

2. **Alumni organization and homecoming** – Organize the graduates into alumni associations, cooperatives, etc., that can venture into income-generating activities, such as mushroom production, cooperatives, banks, etc., where they can apply lessons learned from the SOA.

3. **Field visits** — Visit farmer-graduates, especially the outstanding ones, to check if climate-smart rice the technologies shared by the SOA—SRA are being applied. Field activities as well as coordination with the carrier radio station must continue even after the completion of the SOA.

Chapter 5

Logistical Requirements

A. Premises

1. If there are adequate resources, then more materials should be produced to support SOA graduates.

2. Procurement of the needs and necessities for the SOA should be prioritized.

    a) For SOA learners who do not own radio sets, lessons can be taped and replayed in a group-listening set-up. Those who can tape lessons have the advantage over those who cannot, especially so if there are contests for honors among learners. In this case, group listening is recommended.

    b) Taped lessons, manuals, and handouts should be given after the SOA. Handouts may be paid for by the enrollees themselves (for a minimal amount only).

    c) The barangay may use an amplifier to attract and gain more listeners.

    d) Existing community audio towers (CATs) may also be tapped.

    e) Exchange visits may be conducted among farmer-graduates as part of follow-up activities.

B. Necessities

1. Materials for the promotion, production, handouts (supplementary reading materials) and documentation activities:

a) Papers for certificates, notebooks for learners, bond paper for enrollment forms, cartolina for posters, etc.

b) Ballpens

c) Batteries

2. Materials for the graduation ceremonies:

a) Prizes for outstanding graduates and other awards (planting materials, farm animals, organic fertilizer, radio sets, farm implements, etc.)

b) Corsage, leis, ribbon for graduates

c) Streamers

d) Certificates of appreciation for those who participated in the SOA, other than the enrollees, e.g., resource persons, benefactors, sponsors, etc.

e) Food for the graduates, SOA partner agencies and guests.

C. Equipment

1. Smart phone
2. Digital video/still camera
3. Laptop/desktop computers
4. Audio production equipment
5. Public address system

D. Human resources

1. Project coordinator
2. Field coordinator
3. Farmcaster/development broadcaster

4. Scriptwriters
5. Subject matter specialist/lecturer
6. Translators
7. Agricultural technicians
8. Program production staff

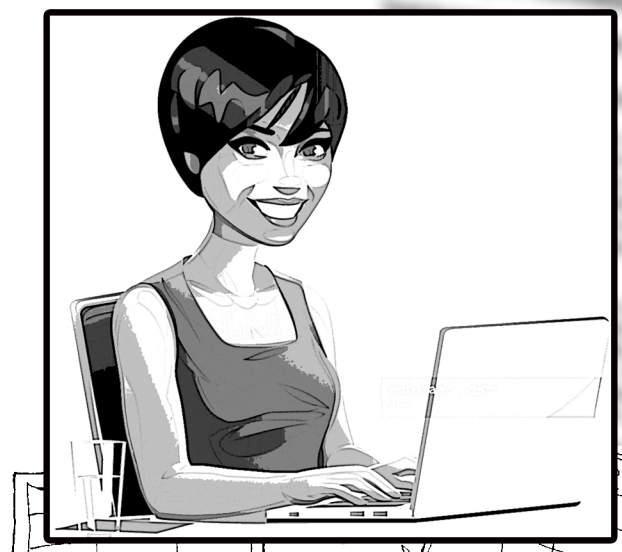
E. Funding requirement

1. Honoraria of lecturers and broadcasters
2. Per diem of field coordinators
3. Transportation, food and accommodation
4. Printing of handouts, certificates and other materials
5. Production supplies and materials
6. Graduation activities

F. Resource generation

Resource generation should be conducted per area to augment operational funds for the SOA. The following are potential sources of funds:

1. DA Central and Regional Field Offices
2. Government agencies (e.g., DAR, DOST, DENR)
3. Provincial LGUs
4. Foreign donors
5. Foundations
6. Agricultural input companies
7. Fund-raising activities (e.g., SOA raffles)

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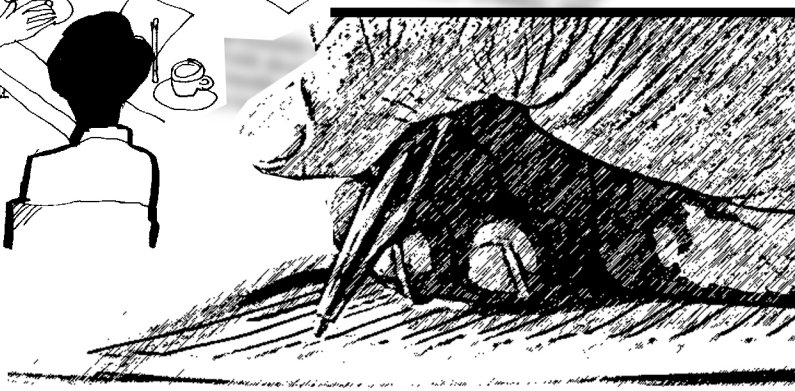

Chapter 6

Reporting Procedures

A. Purpose of reporting

Report writing is a very important requisite of the SOA to:

1. Inform and update management and partners regarding the progress of the project;
2. Communicate the accomplishments of the project to donors and partners;
3. Appraise community members and stakeholders about the developments of the project;
4. Help researchers extract knowledge from the project;
5. Evaluate and determine opportunities for further action;
6. Share insights on the project's successes and challenges.

B. Content of report

The SOA report should include the following (include pictures):

1. Enrollees and number of graduates;
2. Major accomplishments and progress of the project;
3. Challenges (e.g., dropouts, logistics, etc.);
4. Initial outcomes;
5. Insights and recommendations;

C. Frequency of reporting

Reports will be done quarterly from the start of the project.

D. Reporting centers

The ATI Regional Centers will write quarterly reports of the RTWGs to be submitted to ATI Central Office which will write the terminal report on behalf of the NTWG to be sent to the DA Secretary.

Attachment 01

Provinces with <4 t/ha yield (Irrigated)

Luzon

Region		Province
CAR		1. Abra
		2. Apayao
		3. Benguet
		4. Ifugao
		5. Mt. Province
02	CAGAYAN VALLEY	6. Batanes
03	CENTRAL LUZON	7. Aurora
04A	CALABARZON	8. Cavite
		9. Quezon
		10. Rizal
04B	MIMAROPA	11. Marinduque
		12. Romblon
05	BICOL	13. Albay
		14. Camarines Sur
		15. Catanduanes
		16. Masbate

Visayas

06	WESTERN VISAYAS	1. Aklan
		2. Capiz
		3. Guimaras
		4. Iloilo
07	CENTRAL VISAYAS	5. Bohol
		6. Cebu
		7. Negros Oriental
		8. Siquijor
08	EASTERN VISAYAS	9. Eastern Samar
		10. Northern Samar
		11. Western Samar

Mindanao

Region		Province
09	ZAMBOANGA PENINSULA	1. Zamboanga del Norte
12	SOCCSKSARGEN	2. Sarangani
		3. South Cotabato
		4. Sultan Kudarat
13	CARAGA	5. Agusan del Norte
		6. Agusan del Sur
		7. Dinagat Islands
		8. Surigao del Norte
		9. Surigao del Sur
BARMM		10. Basilan
		11. Lanao del Sur
		12. Sulu
		13. Tawi-tawi

Total – 40 Provinces

Provinces with <2.8 t/ha yield (Rainfed)

Luzon

Region		Province
CAR		1. Apayao
		2. Benguet
		3. Kalinga
		4. Mt. Province
02	CAGAYAN VALLEY	5. Batanes
		6. Quirino
04 A		7. Batangas
		8. Cavite
		9. Laguna
		10. Quezon
		11. Rizal
04 B	MIMAROPA	12. Marinduque
05	BICOL	13. Albay
		14. Catanduanes
		15. Masbate

Visayas

06	WESTERN VISAYAS	1. Aklan
		2. Guimaras
07	CENTRAL VISAYAS	3. Bohol
		4. Cebu
		5. Negros Oriental
		6. Siquijor
08	EASTERN VISAYAS	7. Biliran
		8. Eastern Samar
		9. Northern Samar
		10. Southern Leyte
		11. Western Samar

Mindanao

Region		Province
09	ZAMBOANGA PENINSULA	1. Zamboanga del Norte
10	NORTHERN MINDANAO	2. Camiguin
11	DAVAO REGION	3. Davao del Sur (including Davao City)
12	SOCCSKSARGEN	4. North Cotabato
		5. South Cotabato
		6. Sultan Kudarat
13	CARAGA	7. Agusan del Sur
		8. Dinagat Islands
		9. Surigao del Sur
BARMM		10. Basilan
		11. Lanao del Sur
		12. Sulu
		13. Tawi-tawi

Total – 39 Provinces

(Source of basic data: PSA, 2020)

Attachment 02

Cutting edge technologies for modern rice agriculture

Philippine Rice Information System (PRISM) (2013-2017)
PRISM is an online system at https://prism.philrice.gov.ph/ that consolidates and presents accurate, timely and location-specific information on the status of the rice crop in the country to support the DA in decision-making and planning interventions, disaster preparedness and rapid response to emergency situations (e.g., flood or drought). PRISM leverages technologies like remote sensing, crop modeling, smartphone-based surveys, and web-based platforms to generate information on where, when, and how much rice is produced, crop health, flood and drought damage assessments.

Rice Crop Manager

RCM Advisory Service at <https://phapps.irri.org/ph/rcm> is a web-based platform that consolidates Rice Crop Manager and complementary decision-making tools and services into one integrated advisory and information service for rice-based farming in the Philippines. The core of the RCM Advisory Service is Rice Crop Manager, which provides farmers with a personalized crop and nutrient management recommendation for rice fields through a one-page printout and text messages to the phone of the farmer. The RCM Advisory Service combines Rice Crop Manager with additional tools and services aiming to reduce production costs, increase yields, increase net income, and facilitate a professional extension service deploying appropriate information at correct times to farmers through information and communications technology (ICT)

Pest Risk Identification and Management (PRIME)

PRIME at https://pestrisk.da.gov.ph/ understands risk factors for pest outbreaks and identify appropriate management strategies and tactics to reduce crop losses. Five pests, which cause major losses in the Philippines are being studied (i.e., leaf blast and neck blast, bacterial blight, rice tungro

disease and its vector the green leafhopper, brown plant hopper, and rats). It builds on the existing platform of PRISM and integrate field-based pest surveillance and information derived from satellite and drone images, such as cropping intensity, planting synchrony, and crop health indicators to identify risk factors of pest and disease outbreaks, map potential outbreak risks, and formulate integrated pest management (IPM) strategies.

Hybrid Rice

Hybrid rice is a type of rice that has been bred from two very different parents. It can significantly outyield other rice varieties. Hybrid rice technology is a method to increase the rice productivity by exploiting the hybrid vigor or the increase of certain characteristics (i.e. growth rate, yield, fertility, etc.) of hybrid organism over its parents1. Hybrid rice is the product of a cross between genetically distinct rice parents, developed for greater vigor and yield than either of its parents.

Use of hybrid rice varieties yields 15%-30% higher than the use inbred varieties. Its increased vigor makes them more competitive with weeds and increases its resistance to diseases and insects. In 2019, there was a 1mt/ha increase in the average yield of hybrid seeds (6mt/ha) than that of inbred seeds (5mt/ha)2. Additionally, higher production quantity means increased income of the farmers.

Because hybrid rice can outyield other varieties of rice, it is a key technology that meets the increasing global demand for rice. Today, hybrid rice closes yield gaps evident in many areas. It also raises yield potential. Bountiful harvests mean that farmers earn higher incomes and rice becomes available and affordable to more consumers.

Alternate Wetting and Drying (AWD)

Alternate Wetting and Drying (AWD) is a water-saving technology that farmers can apply to reduce their irrigation water consumption in rice fields without decreasing its yield. In AWD, irrigation water is applied a few days after the disappearance of the ponded water. Hence, the field gets alternately flooded and non-flooded. The number of days of non-flooded soil between irrigations can vary from 1 to more than 10 days depending on the number of factors such as soil type, weather, and crop growth stage.

Appropriate use of AWD offers considerable savings in water use during the rice-growing season without reducing crop yield. The traditional practice of growing rice in continuously flooded fields consumes a disproportional amount of water compared to other crops. AWD also offers mitigation co-benefits through its capacity for reducing GHG emissions, specifically methane, relative to traditional lowland rice cultivation. The combination of continuously flooded soils and the organic-rich rice paddy environment provides the ideal conditions for anaerobic bacteria to decompose organic matter, thereby producing methane as a byproduct.

Water Efficient and Risk Mitigation Technologies for Enhancing Rice Production (WateRice)

WateRice aims to increase production efficiency and water-productivity and reduce production risks by developing appropriate crop management technologies in irrigated and rainfed environments. It mainly features the development of an irrigation advisory service (using AutoMonPH) which automates the monitoring of water level and sharing of relevant information on irrigation scheduling.

Laser levelling

Laser land leveling is a laser-guided technology used to level fields by removing soil from high points of the field and depositing it in low points of the field. This technology improves crop establishment and enables crops to mature uniformly. In the Indo-Gangetic Plains of India, yields were found to have improved by 8% for rice and wheat; in Cambodia, rice yields improved by 24%. This technology improves land evenness to result in a) more uniform crop germination, b) even distribution of irrigation water, c) reduce crop lodging and d) higher N efficiency.

Laser land leveling reduces GHG emissions by saving on energy, reducing cultivation time, and improving input-use efficiency. In a level field, water is distributed evenly, thus, reducing the amount of time and volume of water needed for irrigation. Fertilizer use is more efficient as nutrient runoff from high points to low points in the field is less. Prior to using alternate wetting and drying, laser land leveling avoids too much drying of high points in the field, resulting in yield penalty during the AWD process.

Machine transplanting

Using a mechanical transplanter is time and labor efficient, compared to manual transplanting. Other benefits are an improved seedling establishment and a uniform maturity. For the transplantation with the machine, seedlings are nursed for 12-15 days in advance. GHG emissions are reduced through the use of machine transplanting because of a reduction of cultivation time and improving water-use efficiency. It is most effective in combination with laser land leveling, which reduces the amount of time and volume of water needed for irrigation. Through a better plant establishment, a higher yield quantity can be achieved, which is resulting in a lower emission per yield unit.

Fertilizer spreader

The mechanical fertilizer spreading system ensures a uniform distribution of nutrient to rice crops in small- and large-scale farms. Using the mechanical fertilizer spreader, IRRI's post-harvest team measured up to 9% yield increase and less time spent in fertilizer application (manual application: 2 hours/hectare; mechanical fertilizer spreader: 1.3 hours/hectare). The yield increase and savings on labor imply more income for farmers and better productivity. Improved and regulated fertilizer and pesticide application likewise contribute to mitigating GHG emissions and reducing wastes. It also protects operators and consumers from the potential hazards brought about by chemical use. All these benefits make rice production more environmentally and socially sustainable.

The whole range of machines on rice production from seedbed preparation to harvesting can be accessed at: http://www.knowledgebank.irri.org/images/docs/landpreparation-irri-farm-machinery.pdf

Sources:

Obien, S.R, et al. 2020. Assessment Report of the Philippines-IRRI Collaborative Rice Program. Dept. of Agriculture, Elliptical Road, Diliman, Quezon, City.

Labios, R.V., et al.. 2019. Compendium of Climate-Resilient Agriculture Technologies and Approaches in the Philippines. SEARCA, College, Los Baños, Laguna, Philippines; and CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Implementing guidelines for hybrid rice program

https://www.irri.org/hybrid-rice

Attachment 03

PALAYCHECK SYSTEM
For Philippine Irrigated Lowland Rice

INTRODUCTION

PalayCheck is a dynamic rice crop management system that:

- Presents the best key technology and management practices as Key Checks;
- Compares farmer practices with the best practices; and
- Learns through farmers discussion group to sustain improvement in productivity, profitability, and environment safety.

KEY CHECK 1:
USED HIGH QUALITY-SEEDS OF A RECOMMENDED VARIETY

High-quality seeds are relatively pure, have fewer weed seeds, free from visible seed-borne diseases, full and uniform in size, and have at least 85% germination rate. As crops from high-quality seeds grow, mature, and ripen uniformly, harvesting activities become more efficient. This results in a 10% or more increase in yield. Recommended varieties are adapted to local conditions. They are resistant to biotic stresses (e.g. prevalent pests and diseases) in the area, have produced relatively stable and high yields, and are preferred by farmers and local consumers.

KEY CHECK 2:
WELL-LEVELED FIELD

A well-levelled field is a pre-requisite to good crop growth and management. It helps achieve the following:

- efficient water management
- less weed incidence
- better snail management
- efficient nutrient utilization

- uniform crop growth and maturity
- efficient use of farm machinery

To achieve a well-leveled field, weeds, rice straw, and stubbles must be thoroughly decomposed and land is well-puddled. A poorly prepared field could yield 5% less.

KEY CHECK 3:
PRACTICED SYNCHRONOUS PLANTING AFTER A REST PERIOD.

Synchronous planting after a rest period enables efficient use of irrigation water and avoids overlapping incidences of insect and disease populations, thereby preventing yield loss. If farmers in an area plant synchronously, crops can be harvested almost simultaneously, leaving no food source for insect pests to survive on and multiply.

KEY CHECK 4:
SUFFICIENT NUMBER OF HEALTHY SEEDLINGS

Healthy seedlings have short leaf sheaths, long and dense roots, and even height. They grow uniformly and have no pest damage. With uniform growth, healthy seedlings produce a good canopy and every plant can avail of sufficient sunlight and soil nutrients. They can also easily recover from transplanting shock, and have higher survival rate.

KEY CHECK 5:
SUFFICIENT NUTRIENTS FROM TILLERING TO EARLY PANICLE INITIATION (EPI) AND FLOWERING

Nutrient inputs as fertilizers fill the gap between what the crop needs and what is currently present in the soil, water, and air. Sufficient nutrients from tillering to EPI and flowering ensure good growth and uniform panicle development of the crop. They also ensure attainment of the crop's yield potential. If nutrients are insufficient during these stages, there may be slow growth, less tillers and panicles, fewer seeds, and lighter grain. Excessive nutrients will cause pest damage, lodging, and soil pollution.

KEY CHECK 6:

AVOIDED STRESS CAUSED BY DROUGHT OR EXCESSIVE WATER THAT COULD AFFECT THE GROWTH AND YIELD OF THE CROP

The right volume of water promotes better nutrient uptake, good plant vigor, better snail and weed management, uniform growth and maturity, and more efficient farm operations. Insufficient water causes drought stress that results in low fertilizer efficiency, and low yield and low rain quality. Excessive water results in higher irrigation cost, nutrient imbalance, low yield, and more GHG emissions.

KEY CHECK 7:

NO SIGNIFICANT YIELD LOSS DUE TO PESTS

Knowing how the rice crop interacts with biotic factors and the agroecosystem, and correctly identifying pests and applying ecologically sound management strategies can help prevent significant yield loss. They can also promote high-quality grains

KEY CHECK 8:

HARVESTED THE CROP AT THE RIGHT TIME

Timely reaping and threshing ensures high-quality rice that leads to high market value and consumer acceptance. Harvesting too early results in immature grains with <1 to 1.5% harvest losses, and leads to low milling recovery of as low as 53%. Harvesting too late leads to grain-shattering with > 3% (if manual) harvest losses. This results in low head rice recovery as low as 32% (manual) or 38% (mechanized).

KEY CHECK 9:

DRIED, CLEANED, AND STORED GRAINS PROPERLY

Proper drying, cleaning, and storing maintains grain quality, and helps control postharvest losses. These also maintain the quality of palay suitable for milling and allow long storage. Producing high-quality rice helps meet customers' requirement and acceptance in the market. It also achieves greater overall market value.

Source: https://www.pinoyrice.com/palaycheck/

Attachment 04

Rice and its ecosystem under climate change

Overview

Climate-smart agriculture (CSA) requires a thorough understanding of the principles of adaptation to climate stresses. This includes production of commodities that cope with the rapid changes in climate. Mitigation does not entail farmer incentives per se but is aligned in helping increase resource use efficiencies, which is one of the primary goals of agriculture development. Especially for future trainers of CSA, a thorough understanding of the underlying principle of adaptation and mitigation is imperative for their training activities.

CSA is a concept that aims to integrate climate responsiveness in developing agricultural technologies and approaches to achieve food security and resiliency under a changing climate. CSA technology is a practice that resulted from the application of scientific knowledge in adapting to or mitigating changing climate.

CSA is being mainstreamed by various institutions. However, this has long been practiced by agricultural technicians and farmers to cope with threats brought about by climate change, which can affect their productivity. Indigenous practices are most notable since these methods have been used through time by the minority groups.

Climate-smart rice cultivars

Climate-smart rice cultivars (CSR), with greater tolerance to abiotic stresses (i.e. drought, heat, increasing risks from typhoon- and rainfall-induced floods, sea-level rise, and salt-water intrusions) and biotic stresses (such as pest infestation problems) brought about by the changing climate are “entry point” technologies to reduce risk and raise productivity in affected rice systems.

To help mitigate losses due to abiotic stresses, submergence-, saline-, heat-, and drought-tolerant rice breeding lines have been developed. These are stable varieties adapted to coastal and dry zones. For direct seeding, particularly where water is applied to suppress weeds, tolerance of anaerobic germination (AG) can improve early seedling establishment.

Common abiotic stress conditions:

- Drought
- Salinity
- Submergence

What is drought?

- It originates from a deficiency of precipitation over an extended period of time.
- It is a condition of physical water scarcity that constraint growth and causing acute stress at any key stage. It may occur at seedling stage, at vegetative or at reproductive stage.
- This deficiency results in a water shortage needed for proper crop growth and development resulting in extensive damage to crops contributing to loss of yield.

What is moderate and severe drought tolerance?

- Moderate drought - Rice is tolerant to moderate drought when yield reduction in drought as compared to irrigated control is between 30-60%.
- Severe drought – Rice is tolerant to severe drought when yield reduction under drought as compared to irrigated control is 60-85% or more.
- Severity cannot be based on number of rainless days as it varies:
    - For upland situation where severe drought can appear in 7-10 days of rainfall cessation.
    - For lowland situation where severe drought may appear in 20-30 days after rainfall cessation.
    - Soil type, temperature and evapo-transpiration also vary from place to place and thus create difference in number of days that could lead to moderate to severe drought.

What is salt-tolerant rice?

- Saline-tolerant rice is one that can survive salt levels of at least EC 4 dS m-1 or 40mM NaCl (Use EC meter to measure salt conc.)
- Tolerant either during the seedling stage or during the reproductive stage, or both.

Types of flooding:

- Flash flooding or submergence: >10 days up to two weeks.
- Stagnant partial flooding: long-term flooding up to 60 cm standing water normally for most of the season.
- Deep-water flooding: >100cm, duration >10 days to 5 months.
- Very deep water: up to 3-4 m.

Source:

Labios, R.V, and Reiner Wassman. 2018. Climate-smart Agriculture: Myanmar Context. International Rice Research Institute. College, Los Baños, Laguna, Philippines.

Attachment 05

Sample Memorandum of Agreement

KNOW ALL MEN BY THESE PRESENTS:

This **MEMORANDUM OF AGREEMENT (MOA)** is entered into by and between:

The **DEPARTMENT OF AGRICULTURE – REGIONAL FIELD OFFICE NO. ____ (DA-RFO ___)**, a government office created under the laws of the Republic of the Philippines, with office address at _____ represented herein by **Regional Executive Director _____** and referred to as the "**DA-RFO _____";**

- and -

The **PHILIPPINE RICE RESEARCH INSTITUTE (PHILRICE)**, a government corporation attached to the Department of Agriculture, the lead agency in the country's rice research and development with branch office at _____ represented herein by its Branch Director, _____ herein referred to as "**PHILRICE"**;

The **PHILIPPINE FEDERATION OF RURAL BROADCASTERS (PFRB),** a non-government organization made up of a network of rural broadcasters nationwide, with office address at Quezon City, represented herein by _____**,** herein referred to as "**PFRB"**;

The **PHILIPPINE BROADCASTING SERVICE (PBS) RADYO PILIPINAS**, a government radio station with office address at _____ represented herein by its Manager, _____ herein referred to as "**PBS-RADYO PILIPINAS"**;

The **AGRICULTURAL TRAINING INSTITUTE (ATI),** the government's apex agency in agricultural and fisheries extension services with regional office address at _____ represented herein by its Regional Director _____ herein referred to as "**ATI";**

The **DEPARTMENT OF SCIENCE AND TECHNOLOGY - PHILIPPINE ATMOSPHERIC GEOPHYSICAL AND ASTRONOMICAL SERVICES ADMINISTRATION (DOST-PAGASA),** a government office responsible in providing weather related information with regional office address at _____ represented herein by its Regional Officer, _____ herein referred to as "**DOST-PAGASA"**;

The _____**STATE UNIVERSITY**, a public higher education institution committed to transform the lives of people through high quality instruction and innovative research, development and extension with office address at _____ represented herein by its President, _____ herein referred to as _____;

WITNESSETH:

WHEREAS, the Department of Agriculture-Regional Field Office No. ___ (DA-RFO ___) is the principal agency responsible for the promotion of agricultural and fisheries development in Region _____;

WHEREAS, the DA-RFO ___ envisions a modernized and inclusive agricultural and fisheries sector; a diversified rural economy that is dynamic, technologically advanced and internationally competitive;

WHEREAS, the DA-RFO ___ aims to empower the farming and fishing communities and the private sector to produce sufficient, safe, accessible and affordable food for every Filipino and a decent income for all;

WHEREAS, the DA-RFO ___ has been promoting modern rice technologies and climate resilient varieties in the past years;

WHEREAS, the DA-RFO ___ considers radio-based distance learning through Schools-On-the-Air (SOA) as an effective medium in technology sharing particularly in the rural areas;

WHEREAS, the DA-RFO ___ and partners agreed to conduct a SOA on Modern Rice Agriculture in _____featuring the cutting edge rice technologies;

NOW THEREFORE, for and in consideration of the foregoing premises, the parties hereby agree as follows:

The "**DA-RFO ___"** shall:

1. Allocate funds for the conduct of the SOA on Smart Rice t Agriculture (SOA-SRA);
2. Organize, promote and implement the project with partners;
3. Conduct need analysis in tandem with LGUs;
4. Provide Subject Matter Specialists (SMS) and lead, in tandem with PhilRice in content development;
5. Collate, process and respond to feedback and queries from participants;
6. Produce and provide complementary multimedia knowledge products for participants;
7. Provide airtime slots and program anchors through _____;
8. Organize mass graduation in tandem with partners.

The "**ATI"** shall:

1. Provide Subject Matter Specialists (SMS) and develop module content;
2. Provide multimedia knowledge products to participants;
3. Share pilot radio campaign materials; and
4. Participate in project development and management through the TWG.

The _____(SUC) shall:

1. Provide Subject Matter Specialists (SMS) and anchors;
2. Provide free time slots;
3. Assist in the production of broadcast and print materials;
4. Participate in the technical working group; and
5. Provide multimedia knowledge products to participants; and
6. Participate in project development and management through the TWG.
7. Help promote the project.

The "**PFRB"** shall:

1. Provide program anchors;
2. Co-facilitate the project with DA-RFO ___ and partners;
3. Assist in the production of broadcast materials;
4. Participate in the technical working group; and
5. Help promote the project.

The "**PBS RADYO FILIPINAS"** shall

1. Provide program anchors;
2. Co-facilitate the project with DA-RFO ____and partners;
3. Assist in the production of broadcast materials;
4. Participate in the technical working group;
5. Provide free airtime; and
6. Help promote the project.

"**PHILRICE"** shall:

1. Generate location-specific, climate-smart rice technologies
2. Provide Subject Matter Specialists (SMS) and, together with DA-RFO___, lead in module content development;
3. Provide multimedia knowledge products to participants;
4. Share pilot radio campaign materials; and
5. Participate in project development and management through the Technical Working Group (TWG).

The "**DOST-PAGASA"** shall:

1. Provide Subject Matter Specialists (SMS) and develop module content;
2. Provide multimedia knowledge products to participants;
3. Share pilot radio campaign materials; and
4. Participate in project development and management through the TWG.

The "**LGUs"** shall:

1. Mobilize farmers to enroll and promote the SOA-SRA in their respective areas;
2. Provide climate-smart rice extension services in participating communities;
3. Regularly monitor participation of enrollees;
4. Conduct needs assessment with DA-RFO ___;
5. Conduct pre-test and post-test for enrollees;
6. Solicit feedback and comments from enrollees; and
7. Organize mass graduation with DA-RFO ___ and partners.

The "**IRRI-CCAFS SEA"** shall:

1. Generate and share cutting-edge climate-smart rice technologies
2. Help develop module content;
3. Provide multimedia knowledge products to participants;
4. Share pilot radio campaign materials;
5. ink the project with international partners.

IN WITNESS WHEREOF, the parties have hereunto affixed their signatures on this _____ day of _____ at _____ _____.

Attachment 06

Sample SOA Curriculum

Preliminary 5 episodes, Module 1-8 episodes, Module 2-23 episodes, Module 3-32 episodes = Total = 68 episodes (5 months and 2 weeks)

PRELIMINARY TOPIC

I. Overall objectives:

After listening to the lessons the listeners will be able to:

- Discuss the rationale, objectives and methodologies of the Rice Model Cluster program implemented by the Department of Agriculture – Regional Field Office 02 (DA-RFO2);
- Cite the rationale behind the implementation of the School-On-the-Air (SOA) Climate-Smart Agriculture in Cagayan Valley and how will it complement the Rice Model Cluster program of DA-RFO2;
- Explain the operational scheme of the SOA-CSA and how different agencies work together to realize its goals

II. Content Summary: Preliminary 5 episodes

PRELIMINARY TOPIC – Episodes

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date (2018)
1	Rice Industry Situation in Region 02	Discuss the Rice Industry Roadmap for Development 2017-2022 and brief overview of the SOA on Climate-Smart Agriculture cum Rice Production dubbed as “Kaalamang Pagsasaka sa Himpapawid”.	DA RFO2 Regional Executive Director (RED) Lorenzo M. Caranguian 2 episodes	March 5 and 7 (Mon and Wed)

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date (2018)
2.	Getting to know the Rice Model Cluster (Part I): Rationale and objectives	Discuss the program, its objectives and overview of the methods to be used in the implementation of the program. This also include discussion of regional concerns and challenges on rice production	Dr. Ernesto D. Guzman, Ph.D./ LI.B. 1 episode	March 9 (Friday)
3.	Getting to know the Rice Model Cluster (Part II): Methodologies	Discuss in detail the interventions from the DA-RFO II and other agencies. Discuss the program methodologies such as selection of program site, farmer cooperators, briefings, and trainings.	Dr. Ernesto D. Guzman, Ph.D./ LI.B. DA RFO2 1 episode	March 12 (Mon)
4.	School-On-the-Air (SOA) Climate-Smart Agriculture in Cagayan Valley: Rationale	Discuss the rationale of the program and how it will complement the Model Rice Cluster program of the DA-RFO II.	Dr. Rex L. Navarro, Consultant, CCAFS-SEA 1 episode	March 14 (Wed)
5	School-On-the-Air (SOA) Climate-Smart Agriculture in Cagayan Valley: Introduction of the project implementers	Discuss the operational scheme of the project and how different agencies work together to realize the goals of the project.	Dr. Rex L. Navarro 1 episode	March 16 (Friday)

01 MODULE CLIMATE-SMART AGRICULTURE

I. Overall objectives:

After listening to the lessons the listeners will be able to:

- Discuss the concept of climate change – how and why it happens.
- Explain the impact of climate change on agriculture and food security.
- Enumerate the three pillars of Climate-Smart Agriculture: Productivity, Adaptation and Mitigation

II. Content Summary: 8 episodes

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date
1	Climate Change 101	Define concepts such as Climate Change, El Nino, La Nina, Global warming, greenhouse effect, among others. Provide overview of the impact of climate change to agriculture and food security Climate variability in Region 2.	DOST-PAGASA/ IRRI-CCAFS SEA 2 episodes Mr. Romeo B. Ganal Weather Specialist I	March 19 and 21 (Monday and Wed)
2	Impact of climate change on rice production	Discuss the effect of sea-level rise, flooding and salinity to rice production Discuss the effect of increased carbon dioxide levels and higher temperatures, water scarcity and pests, diseases and weeds	Dr. Ernesto D. Guzman, LI.B./ Ph.D. 1 episode	

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date
3	Mainstreaming the effects of Climate Change in Rice Production	Relationship of climate change to farmer's productivity as per study result	Dr. Felino P. Lansigan, Dean of College of Arts and Sciences, UPLB 1 episode	July 30 (Mon)
4	Climate-Smart Agriculture: Adaptation	Present the importance of crop insurance in case of calamities (drought or flood)	PCIC 2 episodes	April 25 and 27 – Wed and Fri)
5	Financing	Discuss production loans	ACPC 2 episodes	July 25 and 27

02 MODULE CLIMATE-SMART RICE PRODUCTION TECHNOLOGIES

I. Overall objectives:

After listening to the lessons the listeners will be able to apply climate-smart technologies from variety selection, land preparation, crop establishment, integrated nutrient management, water management, and integrated pests and diseases management.

II. Content Summary: 23 episodes

Episode No.	Topic	Topic Content	Resource Person/Agency	Broadcast Date
1	Use of high quality seed of preferred varieties	Impact advantages of high quality, certified, registered and foundation Specific variety for region 2- (5 varieties national level and 3 regional level	PhilRice Isabela	May 7 (Wed)

Episode No.	Topic	Topic Content	Resource Person/Agency	Broadcast Date
2	Varieties for adverse ecosystem (upland, drought, saline, submergence, cool elevated, include sample varieties and sources)	Discuss and introduce rice varieties with some resistance to climate-related stresses (drought-tolerant)	PhilRice Isabela	May 9 (Wed)
3	Land Preparation	Introduce the Reduced Tillage Technologies (RTT) as cost-efficient land preparation option (decomposition, soil tilth,	PhilRice Isabela	May 11 (Fri)
4	Seedling management	dryland preparation) Discuss seed soaking, incubation, seedbed preparation and sowing	Dr. Ernesto Guzman 1 episode	May 14 (Mon)
5	Crop Establishment	Discuss cost-efficient crop establishment strategies and research results (Mechanical direct seeded rice (DSR) technology, transplanter and seeder, etc.)	Engr. Generoso Oli 2 episodes	May 16 and 18 (Wed and Fri)
6	Aerobic Rice Technology (ART)	Discuss the use of Aerobic Rice Technology (ART) not only for rainfed areas but also for tail-end irrigated areas	Dr. Junel Soriano, ISU Echague (2 episodes)	May 21 and 23 (Mon and Wed)
7	Integrated Nutrient Management (INM) (Part I)	Define Integrated Nutrient Management (INM), its importance and essential elements of rice and application technique.	PhilRice Isabela 2 episodes	May 25 and 28 (Fri and Mon)

Episode No.	Topic	Topic Content	Resource Person/Agency	Broadcast Date
8	Integrated Nutrient Management (INM) (Part II)	Discuss the concept of Minus-One Element Technique (MOET) to aid farmers in nutrient management and LCC	PhilRice Isabela	May 30 (Wed)
9	Integrated Nutrient Management (INM) (Part III)	Provide information on Laboratory Soil Analysis, Proper Collection of Samples and other Plant Nutrition concern	DA-RFO II (Ms. Margaret Aguinaldo) 2 - episodes	June 1 and 4 (Fri and Mon)
	RCM	Overview of the RCM	DA-RFO II Ms. Jovy Chua 1 episode	August 6 (Mon)
10	Water Management	Discuss the basic water management concepts, principles, and irrigation water-saving tips and water releases	NIA – 1000/ha 2 episodes NIA-MARIIS 1 episode	June 6, 8, 11 (Wed, Fri, Mon)
11	Alternate Wetting and Drying (AWD)	Discuss the concept of Alternate Wetting and Drying (AWD) as a climate-friendly water-saving technology that farmers can adopt	PhilRice Isabela 1 episode	June 13 (Wed)
12	Integrated Pest Management (IPM)	Define Integrated Pest Management (IPM) and differentiate organisms found in rice plant	PhilRice Isabela 3 episodes	June 15, 18, 20 (Fri, Mon, Wed)
13	Integrated Pest Management (IPM) Part II	Discuss management options for common pests and diseases and pest surveilance	RCPC – Ms. Mindaflor Aquino1 episode	June 22 (Fri)

03 MODULE POST-PRODUCTION TECHNOLOGIES

I. Overall objectives:

After listening to the lessons the listeners will be able to:

- Explain the importance of timely harvesting and the use of mechanical harvesting for efficiency and cost reduction.
- Perform post-harvest operations and operate appropriate machines to be used in each operation.
- Discuss different marketing strategies that farmers can adopt to increase their income.

(Testimonies from farmers are needed in this lesson).

II. Content Summary: 32 episodes

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date
1	Harvest Management	Harvesting tips suited for different ecosystem/ environment Mechanization (use of combine harvester, stripper, walk behind, riding type, etc.)	Philmech 2 episodes	March 23 and 26 (Friday and Mon)
2	Harvesting	Conventional vs. mechanical as per research result, Proper handling operation and maintenance of combine harvester	Engr. Eva Eslava DA RFO 2 2 episodes	April 2 and4 (Mon and Wed)
3	Post-harvest Operations	Discuss techniques on threshing, drying, piling, cleaning, milling, storage	Philmech 6 episodes	(April 6, 9, 11, 13, 16 and 18) – Friday, Mon, Wed, Fri, Mon, Wed)

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date
4	Marketing and trading	Discuss marketing/trading strategies, grain quality standard, tips on good warehousing practices, buffer stocking and business opportunities for rice	NFA Region 2 2 Episodes	April 20 and 23 (Friday and Mon)
	Marketing	Marketing Strategies (AMAD)	AMAD 1 episode	August 9 (Mon)
5	Rice-based technologies	Discuss Palayamanan System	PhilRice 2 episodes	June 25 and 27 (Mon and Wed)
7		Mushroom production	Cherrybel Cubero DA SCRC 2 episodes	June 29 and July 2 (Fri and Mon)
8		Rice-mungbean cropping	Vanessa Fortin Calderon DA CVRC 1 episodes	July 4 (Wed)
9	Seed quality	Importance of seed certification	Dr. Henry Carpiso BPI-SNQCS 2 episodes	April 30-May 2 (Mon and Wed)
10	Seed system	DA RFO 02 seed production and distribution	Corazon Cardenas DA RFO 02 1 episode	May 4 (Fri)
	Principles of Cooperatives	Discuss the role of cooperatives in mainstreaming agriculture CDA (testimonies of successful …)	CDA 2 episodes	July 6 and 9 (Fri and Mon)

Episode No.	Topic	Topic Content	Resource Person/ Agency	Broadcast Date
11	Institutional Development and knowledge management	Discuss the importance of organizational development and values formation Discuss knowledge management processes	ATI RTC 02 1 episode 1 episode	July 11 and 13 (Wed and Fri)
12	Record keeping	Discus the importance of proper recording	Dr. Ernesto Guzman 1 episode	July 16 and 18 ((Mon and Wed)
		Record keeping (farmer's sharing)	Dr. Rex Navarro 1 episode	
13	Value adding	Discuss processing techniques for rice-based products	DOST/CSU 1 episode	July 20 (Fri)
14	Rice wastage advocacy	Discuss the Be Riceponsible Campaign	PhilRice 1 episode	July 23 (Mon)
15	Rice Achievers Testimonies	Relate success stories	DA RFO 02 2 episodes	August 6 and 8 (Mon and Wed)
16	Wrap - up			August 10 (Fri)
17	Graduation			September

Source: Navarro. R.L., Report on the Content Development Meeting, School-on-the-Air on Climate-Smart Agriculture in Cagayan Valley, CCAFS SEA and DA RFO2, May 2017.

About the Sponsors

Department of Agriculture

https://www.da.gov.ph/

The Department of Agriculture is a government agency responsible for the promotion of agricultural development by providing framework, public investments, and support services needed for domestic and export-oriented business enterprises.

The DA envisions a food-secure Philippines with prosperous farmers and fishers. It shall collectively empower them and the private sector to increase agricultural productivity and profitability, taking into account sustainable, competitive, and resilient technologies and practices. Hence, its battlecry is simply: *"Masaganang Ani at Mataas na Kita!"*

The DA also envisions a modernized smallholder agriculture and fisheries for the country; a diversified rural economy that is dynamic, technologically advanced and internationally competitive. Its transformation is guided by the sound practices of resource sustainability, the principles of social justice, and a strong private sector participation.

In the fulfilment of this mandate, it shall be the primary concern of the Department to improve farm income and generate work opportunities for farmers, fishermen and other rural workers. It shall encourage people's participation in agricultural development through sectoral representation in agricultural policy-making bodies so that the policies, plans and programs of the Department are formulated and executed to satisfy their needs.

CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CGIAR CCAFS-SEA)

https://ccafs.cgiar.org/regions/southeast-asia

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) seeks to address the increasing challenge of global warming and declining food security on agricultural practices, policies and measures through strategic, broad-based global partnerships. CGIAR is a global research partnership for a food-secure future. Its science is carried out by 15 Research Centers in close collaboration with hundreds of partners across the globe. Based in Hanoi, Vietnam, CCAFS in Southeast Asia (CCAFS SEA) is hosted by the International Rice Research Institute.

Led by the International Center for Tropical Agriculture (CIAT), now part of the Alliance of Bioversity International and CIAT, CCAFS is a collaboration among all 15 CGIAR Research Centers and coordinates with the other CGIAR Research Programs and Platforms. All CGIAR Centers have a stake in CCAFS, and numerous Centers have considerable climate change expertise and activities.

CCAFS brings together some of the world's best researchers in agricultural science, climate science, environmental and social sciences to identify and address the most important interactions, synergies and trade-offs between climate change and agriculture. The program is carried out with funding support from governments and aid agencies, both through the CGIAR Trust Fund and bilaterally.

CCAFS aims to define and implement a uniquely innovative and transformative research program that addresses agriculture in the context of climate variability, climate change, and uncertainty about future climate conditions.

Philippine Federation of Rural Broadcasters (PFRB)

https://www.facebook.com/PFRuralBroadcasters/

The PFRB is a private, non-stock, and non-profit foundation established in 1981. It uses the broadcast media as the primary vehicle for development, information, education, and linkage between the government and the people in the countryside.

PFRB uses the broadcast media principally as pipeline for development, information and education, as well as link between the government and the people. PFRB's primary role is to use broadcasting to: (1) stimulate people to be agents of their own development, (2) increase people's awareness of the assistance provided by various institutions, (3) elicit involvement of people in countryside projects, and, (4) help people gain access to relevant information as well as the means of communication.

The foundation has over 200 members nationwide, whose program thrusts revolve around rural development and people empowerment. It also helps both government and nongovernment organizations in bringing relevant information to the rural masses.

The PFRB has received numerous citations and honors from prestigious organizations. Among these are the Global 500 Laureate Award of the United Nations Environment Program, the HAMIS Silver Award by the Department of Health, and the Likes Yaman Award of the Department of Environment and Natural Resources.


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